REMARKS

Claims 1 and 16 have been canceled without prejudice or disclaimer, since the invention is adequately covered by the retained claims, which are 2-15 and 17-19, plus newly presented claim 20, which corresponds to the combination of original claims 1-5. Claims 8, 11, 13, 15 and 20 are independent. A check of which $200 covers the fee for the presentation by a small entity of two independent claims in excess of three is enclosed. Please charge any additional fee or credit any overpayment to our deposit account 03-3125. A copy of this sheet is enclosed.

In claim 11, it has been made clear that the temperature sensors are to be arranged in the region having non-homogeneous temperature (as disclosed on page 5, lines 26-28).

Claim 13 as rewritten in independent form has been indicated to be allowable by the Examiner.

Claim 14 now refers back to claim 8 instead of 1.

The features of claim 16 have been incorporated into claim 15, and claim 17 now refers back to claim 15.

Claims 2, 6, 7 and 10 have been made dependent on claim 8, and claim 9 has been made dependent on claim 5.

Claims 1-19 are objected to because of the use of the term "heating" for "heater" and because of a lack of antecedent basis in claim 13. Appropriate amendment of claims 1-3, 6, 10, 11 and 15 has been made, and an explanatory amendment has been made to the specification at page 1, line 22. Claim 13 has been amended to supply antecedent basis within the confines of the claim. (It is noted that antecedent basis appears also in the specification; see, for example, page 3, lines 14-18.) Withdrawal of the objection to the claims 1-19 is respectfully requested.

Claims 1-6, 10 and 15 are rejected under 35 USC Section 102(b) as being anticipated by Stulen et al. (5,980,102). Claim 7 is rejected under 35 USC Section 102(a) as being unpatentable over Stulen et al. in view of Miura et al. (4,693,116). Claims 8, 14 and 16 are rejected under 35 USC Section 103(a) as being unpatentable over Stulen et al. in view of Inushima et al. (6,550,325). Claims 9, 11, 12 and 17 are rejected under 35 USC Section 103 (a) as being unpatentable over "Sultan et al." (presumably Stulen et al.) in view of Lacey (5,379,630; cited in the text of the Office action but not listed on form PTO-892). Claim 18 is rejected under 35 USC Section 103(a) as being unpatentable over Stulen et al. in view of Adams et al. (4,712,996). Claim 19 is rejected under 35 USC Section 103(a) as being unpatentable over Stulen et al. in view of Fujiwara et al. (6,684,694).

The rejections are respectfully traversed.

New independent claim 20 states that the "measured quantity tl corresponds to a difference between the fluid temperatures at the first and the second temperature detectors" and "the measured quantity t2 corresponds to the fluid temperature at the second temperature detector", wherein, according to the claim, the first temperature detector is arranged (as seen in the flow direction) before the heater and the second one after the heater.

The Office Action points out, regarding claim 4, that Stulen et al. teach a measurement of a quantity t2 at the second temperature detector, and, regarding claim 5, that Stulen et al. teach a measurement of a quantity tl as a difference of temperatures at two temperature sensors. For the latter feature, the Office Action refers to col. 6, lines 54 - 62 of Stulen et al.

We note, however, that the passage at col. 6, lines 54 - 56 says that "a reading of temperature differentials between the *top* and the *bottom* of the pipe can give some very useful information" (emphasis added), which does not indicate that the temperature detectors are arranged before and after the heater as claimed: According to the claim, tl is a difference of the temperatures at the first and the second temperature detectors, wherein, also according to the claim, the first detector is arranged before the heater and the second one after it. Hence, a measurement of tl according to new claim 20 is not taught by Stulen et al.

Nor do Stulen et al. teach the combination of measuring a temperature tl and a

temperature t2 as claimed.

Each of independent claims 8, 11 and 15 now states that the parameter k is the mixing ratio of at least two substances or fluids.

Original claims 8, 14 and 16 (the latter corresponding to amended claim 15) have been rejected as being unpatentable over Stulen et al. in view of Inushima et al.

Inushima et al. teach to use a thermal pulse technique to distinguish between different fluids (col. 25, lines 31 - 52). However, Inushima et al. clearly state that such a distinction is only possible for a *stationary* fluid (col. 25, line 41) or that the flow of the fluid must be *made constant* (including the zero flow rate or stationary state) (col. 45, lines 31, 32). The reason for this is that Inushima et al. are unable to distinguish between an influence of varying flow velocity and varying fluid type because both similarly affect how heat is carried off from the heating pulses of Inushima's heater.

Hence, to incorporate the basic operation process of Inushima et al. in the apparatus of Stulen et al., as argued in the Office Action, a person skilled in the art would recognize that the pulsed device of Inushima et al. *alone* cannot be used simultaneously for the determination of flow *and* mixing ratio. Hence, he or she would decide that the device of Inushima et al. would have to be installed in addition to the heater-and-sensors of Stulen et al. In other words, a person skilled in the art would simply add the whole device of Inushima et

al. to the device of Stulen et al., ending up with a device with two separate detector systems, one for the mixing ratio and another one for the measurements taught by Stulen et al.

In fact, if (for argument's sake) a person skilled in the art were to combine the elements of the devices of Inushima et al. and Stulen et al., he or she would have to change the nature of how one of them works because the device of Inushima et al. uses a pulsed heater and relies on the pulses for measurement, while the device of Stulen et al. uses a continuous heater, and its measurements would be adversely affected if that heater used pulses.

Hence, as mentioned, a combination of Inushima et al. and Stulen et al. would, at best, lead to a device where the heater and temperature detectors of Inushima et al. were completely separate from the heater and temperature detectors of Stulen et al. In contrast to this, independent claims 8, 11 and 15 of the present application require the temperature detectors measuring both relevant quantities tl, t2 to be in the range of influence of the heater, and claim 11 also specifies a region of non-homogeneous temperature generated by the heater.

In addition, using the device of Stulen et al. with a gas that changes its composition continuously would make it impossible to measure the flow accurately. An accurate measurement can be obtained only if the measured signals tl and t2 are both used for the flow determination. Neither Stulen et al. nor Inushima et al. teach to extract the flow m from *both*

measured signals t1 = f1(m, k) and t2 = f2(m, k) as claimed.

Claim 11 has been rejected as being unpatentable over Stulen et al. in view of Lacey (the reference to "Sultan et al." is evidently inadvertent). It must be noted, though, that the passage at col. 1, lines 1-39 of Lacey, which was cited by the Examiner, describes the workings of gas chromatographs, which are devices for analyzing a mixture of gases, but not *for mixing* them as claimed.

In addition, as for Inushima et al., combining the teachings of Stulen et al. and Lacey would lead to a device where, at best, the heater-cum-temperature sensor of Lacey was completely separate from the heater and temperature detectors of Stulen et al.

Further, using the device of Stulen et al. with a gas that changes its composition continuously would make it impossible to measure the flow accurately. An accurate measurement can be obtained only if the measured signals t1 and t2 are both used for the flow determination. Neither Stulen et al. nor Lacey teach to extract the flow m from *both* measured signals t1 = f1(m, k) and t2 = f2(m, k) as claimed.

Miura et al. is cited against claim 7 only for the disclosure of a heater and sensors integrated on a semiconductor chip. There is nothing in that disclosure that makes up for the deficiency of the disclosures of Stulen et al. and Inushima et al. with respect to claim 8, on which claim 7 depends.

Similar observations apply to Adams et al. and Fujiwara et al., relied upon in combination with Stulen et al. for the rejection of claims 18 and 19, respectively. Each of those claims depends on claim 15, which is patentable over Stulen et al. for reasons indicated above. There is no teaching in Adams et al. or Fujiwara et al. that makes up for the deficiency of the Stulen et al. patent as a disclosure or suggestion of the invention as defined in claim 15. In view of their dependencies, claims 18 and 19 are also patentable.

As mentioned above, claim 13 has been indicated to be allowable by the Examiner if appropriately rewritten. Its allowance is respectfully requested.

In view of the preceding amendment and remarks, the application is in condition for allowance. Issuance of a notice of allowance is respectfully requested.

Respectfully submitted,
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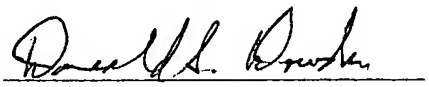

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